

COVER PAGE

Testimony of:

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On:

**Proposed Legislation Entitled:
“The WMD Prevention and Preparedness Act of 2010”**

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**The United States House of Representatives
Committee on Homeland Security
Subcommittee on Emerging Threats**

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STATEMENT OF DR. RANDALL MURCH, VIRGINIA TECH

Chairwoman Clarke, Members of the Subcommittee and Committee Staff, thank you for the invitation to present a statement before you today and have my comments entered into the record regarding this important and timely legislation before the Congress.

My name is Randall Murch. I am a faculty member at the Virginia Polytechnic Institute and State University, which is more commonly known as Virginia Tech. Prior to joining Virginia Tech, I had a 23-year career as a Special Agent with the Federal Bureau of Investigation during which I was heavily involved in counterterrorism and weapons of mass destruction terrorism and counterterrorism from the operational, investigative, intelligence, planning, science and technology and forensic perspectives. In my FBI career, I spent 10 years in the FBI Laboratory and over 8 years in the technical surveillance program and oversaw forensic investigative and technical investigative support efforts for a number of well-known domestic and international terrorist attacks. During this period, the nation endured the attacks in Oklahoma City, Khobar Towers in Saudi Arabia, the USS Cole, the U.S. Embassies in East Africa and 9/11, among other events. I created our national WMD forensic program in the FBI Laboratory in 1996 and oversaw its early development in partnership with other U.S. Government agencies. In my career, I served not only in the FBI, but was also detailed from that agency to the Defense Threat Reduction Agency during the latter part of my career. Later, I was loaned to the Department of Homeland Security, Science and Technology Directorate from Virginia Tech for one year. Since 2000, I have participated in several National Academies and Department of Defense studies related to weapons of mass destruction or homeland security. I still work in relevant areas and provide pro bono advice to the Government in these areas, in addition to others.

Today, I will provide comments for your consideration to some specific sections of the proposed legislation.

Title 1: Intelligence Matters

Section 101. National Intelligence Strategy for Countering the Threat from WMD

I strongly support the development, coordination and implementation of a National Intelligence Strategy for Countering the Threat from Weapons of Mass Destruction as recommended by the WMD Commission to be led by the Director of National Intelligence (DNI). While the creation and vetting of such a strategy is important to lay out a high-level roadmap, as with many other endeavors in Government, public policy and programs, successful implementation through plans with measures of progress and accountability are crucial. There are plenty of good ideas that never go anywhere, or good strategies and plans that go adrift because focus or interest is lost.

In my view, it is not just important to state “where we should be heading” but also to state “what we are going to do” and “when are we going to do it” and “who is responsible for what”, and “measure how well are we doing” and knowing “how well we know how we are doing”. These should come through clearly articulated goals and objectives, assignments of responsibility, requirements or expectations and measures of success. I am gratified to see that provisions have been made in the legislation for plans and reporting. Also someone has to be actively “in charge”; when every one is in charge, no one is in charge. My hope is that the DNI will fill that role and do so well. The enterprise should be held accountable, otherwise having a strategy and a plan is not particularly useful or meaningful. Course corrections can be made as needed. Congress certainly has a role here through its oversight responsibilities.

No one entity can put a strategy and such as this and the associated “complex system” into play. For those who participate, the priorities, assignments and responsibilities should be well matched to what department and agency authorities, responsibilities and capacities are or should be. For example, the copy of the proposed legislation I have notes that the Director of National Intelligence should develop and implement the strategy “in consultation with the Secretary of Homeland Security and the heads of other appropriate Departments and agencies”. The Department of Homeland Security does have important coordination and consumer roles in the envisioned process and outcomes, some DHS agencies are “operational contributors and users”.

However, in my view it is absolutely necessary to improving our capabilities and performance that those non-DHS Federal departments and agencies that have more direct front-line roles in domestic security, law enforcement and intelligence must be fully and aggressively leveraged and involved as equal partners. Those latter agencies I am alluding to have many years of expertise, experience and committed resources, in some cases substantial in each category, devoted to WMD intelligence and response. Perhaps more, better, better focused, and more innovative and integrated initiatives and approaches are required to address the very substantial challenges and gaps we face with WMD intelligence, but we should acknowledge that DHS is a relative newcomer.

Also, during the planning process and before new initiatives and improvements are embraced, it may also be quite cost-effective and operationally-beneficial for the DNI to commission a comprehensive and rigorous “systems analysis” which would identify the specific and relevant capabilities that already exist and assess their effectiveness, and provide the prioritization for gaps, needs and opportunities across the enterprise. This would be the informed and testable basis for designing and commissioning all initiatives going forward across the Intelligence Community.

Section 102. National Intelligence Strategy for Countering Biological Threats

Many of the points I noted above for the National WMD Intelligence Strategy could also be considered, if not embraced, for the next generation of the National Intelligence Strategy for Countering Biological Threats. The latter could, and even should, be clearly viewed and undertaken as being tightly connected to the former. They

are not separate, competing or mutually exclusive, but should be developed and implemented as being closely related, with many interrelationships and interdependencies.

Without spending more time on this strategy itself, permit me to briefly turn to two issues, one which is often stated as “the need for better ‘bio-intelligence’ ” and the second which is stated in the proposed legislation as “expand efforts to create a national cadre of biological experts”.

First, it has been well known for a number of years and in many quarters inside and outside the Intelligence Community that effective and timely intelligence on adversaries’ or proliferators’ intentions, capabilities, plans and actions are crucial in order to prevent, anticipate, disrupt, interdict illicit events and activities or, if an event or transaction of interest occurs, to respond, attribute or prevent subsequent activities of concern. This is not a new revelation. Those who call most vocally for more and better “bio-intelligence” are often fundamentally are unaware of how significantly different and challenging obtaining and leveraging the most precious, timely and sought after nuggets of “bio-intelligence” really is. This truly is a “hard problem”. If we agree that “bio-intelligence” is a high priority and essentially an unaddressed gap, then we should begin by defining and “unpacking” it so that all concerned know what it is and what “it” entails. From my personal experience, the term “bio-intelligence” was first coined by Dr. George Whitesides of Harvard University approximately 10 years ago. Then, he knew what he meant and those of us working with him on studies for the Department of Defense knew what he meant. Today, I’m not sure there is a single, accepted definition of what “bio intelligence” is. What it means depends on who one is talking to. If a universal definition and description of the component elements can be agreed to, i.e. “terms of reference”, it may be a boon to harmonizing interagency and stakeholder communication, collaboration and action on recognized priorities. The next edition of this Strategy could assist with this.

In 2006, the Institute of Medicine of the National Academies published an important study entitled *Globalization, Biosecurity and the Future of the Life Sciences*, that still helps us to frame the complexity and uncertainty of what we face with the future of life science knowledge and technology and their misuse. The reality is that we contend with is a complex, dynamic global ecosystem of rapidly advancing, diversifying, scalable and accessible life science knowledge and applications. The vast majority of this endeavor is used for noble and beneficial purposes, and cannot be controlled. However, in this ecosystem are some who are embedded or hidden in, peripheral to and protected who acquire, develop, test and seek to use or profit from biotechnology and expertise for illicit and nefarious purposes. Intentional and actual misuse can occur by many ways and means, by many actors, from and in many places. The effects and impacts are scalable; one does not have to kill millions to cause significant impact. A little bioagent effectively deployed can make a big mess, as we experienced with the anthrax attacks in 2001.

Intelligence and law enforcement cannot be everywhere, know everything all of the time and be solely focused on “bio-intelligence”, either domestically or globally.

Thus, either we accept the realities we face and limitations of the capabilities and resources we have, or we design, fund and institute a sustained program that identifies the most important priorities to focus on, being at the right places, at the right times, focused on just the right people and process nodes, all of which takes advantage of the best available expertise here and with our allies. Advancing and applying new knowledge and understanding, policies and practices, technology, and leveraging innovation, creativity and calculated risk-taking must be the foundation upon which this effort is built. This would apply to gathering and making sense of large amounts of open source technical information, new infectious disease surveillance approaches, better connecting public health with intelligence and law enforcement, as well as new methods and techniques in human intelligence. There is no “silver bullet” for better “bio-intelligence” and I’m not convinced that simply throwing money at the problem will get us any further down the road. If we agree that a new or improved approach is necessary, we should be prepared to properly choose and resource our priorities and stay focused and committed. Success will not likely be achieved overnight or even in a single budget year.

With regard to better engagement of biological experts for intelligence, this, too, is not a new idea. In my estimation, this is a particularly useful goal which should provide useful outcomes. . In the aforementioned IOM study, such a recommendation was made, which I authored. As far as I am aware, it was the only recommendation from that study that was acted on. Soon after the study was published, the National Counterproliferation Center (NCPC) created the Biological Sciences Experts Group, which reportedly has run well and meaningfully under strong leadership at NCPC since then. However, the pool of highly qualified and available experts is not limitless; it is difficult to hire and retain these experts as Federal employees. Some agencies, such as the Department of Defense, have long and effectively used external experts to study and report on “very hard” science and technology-based problems, including those related to biological weapons and biotechnology. Other key agencies, such as the FBI, are still primarily focused on outside experts for scientific research and development or episodic support to investigations or for liaison purposes, rather than to support their respective mission and responsibilities in intelligence. Perhaps working with the Congress, the DNI and outside senior experts, those agencies that do not have sufficient access to outside experts can improve and access to these experts to support their intelligence-related missions and help address “grand challenges”, gaps, needs and opportunities. This could occur through a single cadre available to the entire Intelligence Community, perhaps by expanding the BSEG and tailoring as needed, or creating similar groups for each agency that are modified. However, with agencies creating their own versions they could well run up against a shortage of knowledgeable, experienced experts. In reality there are only so many highly qualified experts to go around.

I now wish to address to five other sections in the proposed legislation.

Title II. Homeland Security Matters, Subtitle A – Prevention and Deterrence.

Section 2103. Bioterrorism Risk Assessment.

This subsection “requires that the Secretary of Homeland Security, in coordination with the heads of other appropriate Federal departments and agencies, to produce biennial integrated Bioterrorism Risk Assessments to identify and assess evolving biological risks to the nation”. It is well recognized in the community of interest that this activity makes critical contributions to risk management and risk reduction by supporting strategies, plans and programs, investment decisions and public policy. When properly designed, conducted and used, these assessments will continue to prove to be important to the future of our national counter-bioterrorism and biodefense enterprise. However, just as it is important to perform and provide these assessments, it is also important to conduct them in a rigorous, accurate, reliable, scientifically-sound and defensible manner. The users of and stakeholders for these assessments should be able to rely on these assessments with confidence.

In 2006, at the request of the Department of Homeland Security, the National Research Council established a committee to provide a review of DHS’ Bioterrorism Risk Assessment (BTRA) methodology. This study resulted in an interim report focused on near-term improvements and a final report which included recommendations for longer-term improvements. The latter was published in the open literature in 2008. The final report, which includes the interim report in an appendix, provided a detailed, pointed, critical assessment of DHS’ Bioterrorism Risk Assessment methodology and provided a number of recommendations for improvement. To my knowledge and through queries in the community of interest including those in the Government, DHS has not substantively or publicly responded to this report. We do not know whether DHS agrees or disagrees with or has acted on any or all of the NRC’s observations and recommendations. If they disagreed, we should know why this is justified. If they have addressed some or all of the NRC’s concerns, this would provide us with greater confidence that the BTRA is on the right track. Concomitantly, we do not know whether there is a basis for concern that the NRC got it wrong all or in part. If that is the case, there should be pause with future studies coming out of the NRC, since the National Academies reputation is built on performance that is expected to embrace independence, objectivity, relevance and quality.

Going forward, a point-by-point response by DHS to this particular NRC report is not an unrealistic or outlandish expectation. All that is being asked for is to come full circle on the BTRA peer-review process. Good science often leads to sound public policy, programs and benefits and gives all concerned greater confidence. Sometimes peer-review can be harsh, I know this first hand as one who helped lead the FBI Laboratory a very difficult time in the mid-to-late 1990s through an intense period of scrutiny resulting from allegations that the quality of its science and performers was sub-optimal. Further, sometimes peer reviewers are peer reviewed themselves with surprising results. But the process is universally accepted and is designed to make the science and its performers better. This situation should be treated no differently, especially because of its importance.

Given the importance of the BTRA and the observations, recommendations and conclusions reported by our Nation’s leading body of scientific, medical and engineering

experts, this should be resolved and done in a manner that gives all concerned confidence that future BTRAs will always be performed using the best possible methodology and provide the most useful and reliable assessments. This action should also inform the interagency task force that is called for in the legislation.

Subtitle D-Attribution

Section 2141. Bioforensics Capability and Strategy.

Bioforensics is a discipline and national capability that has been near and dear to my heart and professional existence for the past 15 years. I initiated the latter from the FBI Laboratory in prior to the 1996 Olympic Games which gave birth to the former, and oversaw their early development and have been heavily involved various aspects ever since. I still do believe strongly that an effective, reliable, testable, defensible credible forensic capability for biological agents, toxins and associated traditional physical evidence is an important “tool” in our Nation’s biosecurity “kit” specifically to support attribution decisions, legal prosecutions, policy decisions and possibly significant follow-on actions. Though DHS is prominently mentioned in this legislation and previous policy documents and legislation, they are one of a family of agencies that have stakes in an encompassing and robust capability with the attributes I mentioned above.

We have made significant progress in a number of areas within microbial forensics over the past 15 years, but much remains to be done to bring our capability to full fruit so that can address likely events, predictable contingencies and perhaps some exigencies with some surety. While good science exists to draw upon and many lessons have been learned from prior events, there are many gaps in the science and practice, unaddressed forensic requirements, infrastructure needs and national assets that have yet to be established. One important contribution to moving forward was the recently-published *National Microbial Forensics R&D Strategy* led by The Office of Science and Technology Policy which is useful to harmonize the community and encourage collaboration and reduce duplication.

A broader, more overarching strategy document is needed which encompasses not only scientific advancements but also addresses common practices, standards, and shared infrastructure resources such as a National Microbial Forensics Repository, which is also mentioned in this section. Future legislative and policy documents not only need to mention what needs to be done, but also enable “the how” and “who” and what should the outcomes sought should be. These documents should do so to address and balance all appropriate needs and equities of key agencies, now and into the future.

Having a properly constructed, populated operated and maintained repository of known samples against which evidentiary samples can be compared is essential to the proper performance of forensic analyses and rendering conclusions, to include those that support attribution decisions. A repository of this nature can also provide important resources for research, method development and testing. DHS is an important player and

has been assigned a leading role in establishing the Repository, as alluded to in the legislation. However, it cannot and should not do this in a vacuum or without the cooperation, collaboration, participation and shared value and risk of other Federal partners and other constituencies. For agencies to simply give samples to the National Bioforensics Analysis Center does not make a properly designed, functioning and responsive National Microbial Forensics Repository, de facto. The call for a National Repository has been percolating in the microbial forensic (bioforensic) community for several years. There are differing views of experts as to how it should be designed and structured, what it should contain, how it should be organized and function, what standards should govern the science, and how best it can meet the needs, equities and expectations of all prospective users and stakeholders.

As this effort would be very complex with many issues yet to be defined, I have recommended to my colleagues in this community that a well-constructed and conducted systems analysis could provide the proper foundation the desired capability. This would define the “what, why, where, when, who, and how” for future planning and execution.

Section 2142. Law Enforcement Training to Investigate Biological Threats.

I must admit reading this section gave me some concerns, largely because DHS which is fundamentally not the lead involved in the law enforcement or public health investigations of biological threats is now being given a role in training those communities. At the Federal level, for nearly 15 years the responsibility for lead agency rests with the FBI and the Centers for Disease Control and Prevention which have been working closely together since 1996 to establish and improve investigative response and resolution. These two agencies, their parent departments and the communities they work with closely at the state and local levels have been doing this collaboratively for many years. Protocols, practices and methods have been developed and are continually being refined. Many years of practical case experience resides with these agencies and the communities they work with.

More training may be needed but it should not be designed, planned or provided so as to compete or conflict with what is being provided or the investigative processes and protocols that have been developed and used by the FBI and their field WMD Coordinators, the FBI Laboratory’s Hazardous Materials Response Unit, FBI field office Hazardous Materials Response Teams, the FBI-led Joint Terrorism Task Forces, the CDC, State and local public health and emergency services agencies, the Laboratory Response Network and others. To do otherwise could potentially threaten the health and safety of responders and integrity and success of bioterrorism investigations and prosecutions.

If DHS does provide this training now, or will be expected to, they should meet the requirements and expectations of the principal law enforcement and public health agencies that have the lead and who work most closely those who support these investigations. Close coordination with other appropriate agencies should be required;

those agencies should monitor or participate in what DHS provides. Perhaps national standards should be developed, validated and adhered to by all training providers to ensure the highest uniformity and quality.

Subtitle E-Response

Section 2152. Integrated Plume Modeling for Collective Response

This legislation calls for the Secretary (of Homeland Security) to “acquire, use and disseminate timely integrated plume models to enable rapid response activities following a chemical, biological, nuclear or radiological event.”

Two key points with regard to this section: the Departments of Defense, including the Defense Threat Reduction Agency as well as others in DOD, and the Department of Energy in several of their National Laboratories, have spent many millions of taxpayers’ dollars, have developed substantial expertise and have produced usable plume models as a result of many years of effort. It is recommended that the Department of Homeland Security begin its search for, and assessment and acquisition of models in these Departments with leading experts. It is highly likely that it will be a massive and unwarranted waste of Federal funds for DHS to initiate its own *de novo* plume model research and development program.

With regard to the dissemination of plume models, I ask the questions “who are these models to be disseminated to?” and “if the recipients have no going-in capacity to effectively work with these technologies, who will provide training, seamless handoff, and reachback after the modeling technology has been provided?” In my opinion, even if well intentioned, simply “throwing technology over the transom” will not be beneficial to those it is intended to help. If DHS will be in position to acquire, use and share DOD- and DOE-developed plume models, or from other sources that are recognized as “gold standard”, then it should ensure that it has the requisite expertise to use them and provide effective training and reachback to those it provides the models to and expects to use them for improved planning, exercises, response and recovery. I worry that this technology will be provided to the first responder community and just sit on the shelf and not be used or not be used effectively.

Section 208. National Academy of Sciences Study of Forensic Sciences in Homeland Security

I strongly support your legislative initiative for DHS to engage the National Academy of Sciences for a study on the role of forensic sciences in homeland security. This door was opened in the NAS study published in 2009 which was entitled *Strengthening Forensic Science in the United States: A Path Forward*. I was a member of the committee that produced this report and contributed to the section on forensic science and homeland security. This landmark study has been met with great interest and angst,

and is beginning to change how forensic science will be funded, trained, performed, managed, scrutinized and used in the courts, and is viewed by the media and public for years to come. This is very useful reading for how forensic science should be advanced and improved. I am aware that the Senate Judiciary Committee is in the process of introducing legislations that acts on most of the recommendations of this report.

A forthcoming NAS study on the nation's nuclear forensics capabilities, for which DHS' Domestic Nuclear Detection Office was one of three sponsors, will also provide valuable insights in this particular specialty of forensic science. I was a member of the committee that produced this report, as well. The NAS is also currently conducting a study for the FBI to assess the science that was developed and applied to the bioforensic evidence collected and analyzed to support the anthrax investigations which began in October 2001. DHS supported those investigations by scientific support from the National Bioforensic Analysis Centers and through others. Thus, the stage is certainly set to go forward with a new study by the NAS which focuses on forensic science and homeland security more broadly. Requiring a study by the NAS of forensic science for homeland security is a substantially good intention.

But, because of the legitimate concerns with forensic science and its use in our legal system, and the uncharted waters of forensic science being used to support policy decisions, I strongly recommend that the NAS study not only address the role of forensic science in homeland security but also be focused on the current state of forensic science in DHS as it is developed, validated, used and practiced, planned, managed and intended in all of the agencies and components that have forensic science programs and capabilities of any sort or type. This aspect of the study should be comprehensive from traditional forensic science disciplines such as pattern evidence, DNA and chemistry and specialties such as bioforensics (microbial forensics) and nuclear forensics. Without this additional aspect, any NAS study on forensic science for homeland security would be incomplete, and be an opportunity missed. The nation should demand that its forensic science enterprise will meet or exceed requirements and expectations and embrace best science and practice wherever it resides or for whatever mission it supports, including within DHS.

This concludes my testimony. I'll be pleased to try to answer your questions or address your comments. Thank you.

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